



(Three Times Amended) A method of detecting degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

creating a partial magnetic circuit in a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, wherein the poles are spaced longitudinally relative to the rope, so that the partial magnetic circuit runs from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;

~~monitoring, at a position between the poles along a longitudinal direction of the rope,~~ magnetic flux that is emanating from the cord members out through the body of the rope at a position between the poles along a longitudinal direction of the rope and is associated with the magnetic circuit; and

identifying, based on the magnetic flux monitored at the position between the poles, locations along the cord members exhibiting magnetic flux leakage, wherein the locations are indicative of degradation.

4) (Three Times Amended) A method of detecting and locating degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

causing the rope to move at a known rate relative to a pair of magnetic poles positioned adjacent to the body of the rope and spaced longitudinally relative to the rope in order to create a partial magnetic circuit in a portion of the cord members, the partial magnetic circuit running from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;

~~monitoring, at a position between the poles along a longitudinal direction of the rope,~~ magnetic flux that is emanating from the cord members out through

the body of the rope at a position between the poles along a longitudinal direction of the rope and is associated with the magnetic circuit as a function of time; and

identifying, based on the magnetic flux monitored at the position between the poles, points in time in which the cord members exhibit magnetic flux leakage, wherein the points in time are indicative of the location of rope degradation.

5) (Three Times Amended) A method for approximating tension-load bearing capacity of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

creating a partial magnetic circuit in a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, wherein the poles are spaced longitudinally relative to the rope so that the partial magnetic circuit runs from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;

~~measuring, at a position between the poles along a longitudinal direction of the rope,~~ magnetic flux that is emanating from the cord members out through the body of the rope at a position between the poles along a longitudinal direction of the rope and is associated with the magnetic circuit; and

comparing, based on the magnetic flux measured at the position between the poles, measured magnetic flux leakage to predetermined data indicative of tension-load bearing capacity.

6) (Three Times Amended) A method of detecting and locating degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

creating a partial magnetic circuit in a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, wherein the poles are spaced longitudinally relative to the rope so that the partial magnetic circuit runs from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;

~~monitoring, at a position between the poles along a longitudinal direction of the rope,~~ magnetic flux that is emanating from the cord members out through the body of the rope at a position between the poles along a longitudinal direction of the rope and is associated with the magnetic circuit;

identifying, based on the magnetic flux monitored at the position between the poles, locations along each individual cord member exhibiting magnetic flux leakage, wherein the locations are indicative of degradation; and

correlating the locations indicative of degradation of individual cord members with respect to each other to determine relative locations of each.

10) (Three Times Amended) An apparatus for detecting degradation of a rope comprising a rope body of non-ferromagnetic insulator material encasing at least one longitudinally extended ferromagnetic component, the apparatus comprising

a detector body comprising rope guide means for guiding the rope along the detector body;

a magnet fixed with respect to the body for creating a partial magnetic circuit in a portion of the ferromagnetic component of the rope that is adjacent to the detector body, the magnet comprising a pair of magnetic poles located adjacent the rope body and spaced longitudinally relative to the rope when the rope is guided along the detector body by the rope guide means so that the

partial magnetic circuit runs from one of the magnetic poles longitudinally through the portion of the ferromagnetic component to the other of the magnetic poles;

magnetic flux sensing means mounted with respect to the detector body ~~at a position between the poles~~ for monitoring magnetic flux that is emanating from the ferromagnetic component out through the rope body at a position between the poles and is associated with the magnetic field; and  
means for correlating the magnetic flux with rope degradation.